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10/565,047	01/17/2006	Andrew Shaun Treen	06044	5374

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EXAMINER

GREGORY, BERNARR E

ART UNIT PAPER NUMBER

3662

DATE MAILED: 11/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/565,047

Applicant(s)

TREEN ET AL.

Examiner

Bernarr E. Gregory

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_.

Art Unit: 3662

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

On line 3 of independent claim 2, the phrase, "conductor layer carries a plurality of apertures" is unclear in context, particularly to the language that the conductor layer "carries" the "apertures."

Throughout claims 2-25, the uses of the word "apertures" are indefinite and unclear in context. Would an aperture mean that there is an air-filled perforation or an air-filled dimple in the "conductor layer"? Could an aperture be filled with material other than air? Please see 37 CFR §1.75(d)(1).

In dependent claim 2, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 3, "the material" lacks antecedent basis in that there is no earlier recitation of "material" in either claim 3 or in claim 2.

In dependent claim 3, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 4, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 5, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 6, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 7, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 8, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 9, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 10, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 11, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 12, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 13, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 14, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 15, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 16, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 17, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 18, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 19, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 20, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 21, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 22, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 23, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 24, the use of the shorthand "e/m" is indefinite and unclear in context.

In dependent claim 25, the use of the shorthand "e/m" is indefinite and unclear in context.

On line 2 of dependent claim 14, the use of the word "can" makes the claim indefinite and unclear in that it causes the claim language of claim 14 to express merely the potential that the "refractive index of the dielectric" is "actively varied."

On line 1 of dependent claim 16, the use of the word "proportion" is unclear in context. Perhaps, "portion" was meant.

On line 1 of dependent claim 18, the phrase "in a microwave" is indefinite and unclear in context. Is a microwave oven meant?

On line 1 of dependent claim 19, it is unclear in context what is meant by a "tagging system."

Bridging lines 1-2 of dependent claim 20, "the material" lacks antecedent basis in that there is no earlier recitation of "material" in either claim 20 or in claim 2.

On line 2 of dependent claim 25, it is unclear in context what is meant by "metallic response."

Dependent claims 3-25 are unclear in that they depend from unclear independent claim 2.

3. The Specification is objected to under 37 CFR §1.71 in that the Specification fails to disclose the subject matter of claims 14-19, 22, and 24.

With respect to the limitations set forth in dependent claim 14, the Specification fails to set forth how to make and to use structure to vary the "refractive index of the dielectric ... actively ...".

With respect to the limitations set forth in dependent claim 15, the Specification fails to set forth how to make and to use the recited "adhesive tape."

With respect to the limitations set forth in dependent claim 16, the Specification fails to set forth how to make and to use the recited "automobile."

With respect to the limitations set forth in dependent claim 17, the Specification fails to set forth how to make and to use the recited "panel covering for application to a building."

With respect to the limitations set forth in dependent claim 18, the Specification fails to set forth how to make and to use the recited "heating element" or "microwave [sic]".

With respect to the limitations set forth in dependent claim 19, the Specification fails to set forth how to make and to use the recited "tagging system."

With respect to the limitations set forth in dependent claim 22, the Specification fails to set forth how to make and to use the recited absorber that is "backed with an adhesive material."

With respect to the limitations set forth in dependent claim 24, the Specification fails to set forth how to make and to use the recited absorber that is "backed with an adhesive material."

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 14-19, 22, and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter

Art Unit: 3662

which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Please see the remarks with the objection to the Specification in section 3 above.

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features recited in claims 14-19, 22, and 24 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.



Art Unit: 3662

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 2-5, 7-10, 20, 21, 23, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Gilbert (U.S. Patent 6,538,596 B1).

With respect to sole independent claim 2, Gilbert (U.S. Patent 6,538,596 B1) plainly shows an “electromagnetic radiation absorber” (line 1 of claim 2). For example, see claim 1 of Gilbert (U.S. Patent 6,538,596 B1) in columns 5 and 6 of Gilbert (U.S. Patent 6,538,596 B1). The recited “conductor layer” (line 2 of claim 2) is met by the disclosed “ground plane 302” as shown in Figure 3 of Gilbert (U.S. Patent 6,538,596 B1). The invention in Gilbert (U.S. Patent 6,538,596 B1) is a modification of the “Salisbury screen,” where the ground plane would be a conductor. So, “ground plane 302” in Gilbert (U.S. Patent 6,538,596 B1) and as shown in Figure 3 of Gilbert (U.S. Patent 6,538,596 B1) would be a conductor. Please also note at column 5, lines 21-32 that the “ground plane 302 may be implemented as a slot array,” which would inherently be a conductor. As for the recited “dielectric layer” (line 2 of claim 2), this would be met by the RSS layer immediately against the ground plane in Gilbert (U.S. Patent 6,538,596 B1) or by taking all of the FSS layers as a single layer. Please note at column 5, lines 18-

Art Unit: 3662

20 of Gilbert (U.S. Patent 6,538,596 B1) that the FSS layers in Gilbert (U.S. Patent 6,538,596 B1) could be "resistive structures," which, of course, would include dielectrics. Further, with respect to the overall thickness of the claim 2 structure as treated at line 4 of claim 2, please see the last three lines of the Abstract of Gilbert (U.S. Patent 6,538,596 B1) and column 4, lines 36-38 of Gilbert (U.S. Patent 6,538,596 B1). The Abstract of Gilbert (U.S. Patent 6,538,596 B1) states plainly that the "overall thickness of the inventive structure is less than  $\lambda/4$ ." Further, column 4, lines 36-38 of Gilbert (U.S. Patent 6,538,596 B1) states plainly that the "layers" are "much closer" than  $\lambda/4$ .

The further limitations of dependent claim 3 are fully met by Gilbert (U.S. Patent 6,538,596 B1) in that  $\lambda_{\min}$  is not defined, so that any thickness would be less than some  $\lambda_{\min}/10$ .

The further limitations of dependent claim 4 are met by Gilbert (U.S. Patent 6,538,596 B1) due to the use of a "slot array" for the ground plane as discussed at column 5, lines 21-32 of Gilbert (U.S. Patent 6,538,596 B1), which "slot array would have "slit structures."

The further limitations of dependent claim 5 are met by Gilbert (U.S. Patent 6,538,596 B1) due to the use of a "slot array" for the ground plane as discussed at column 5, lines 21-32 of Gilbert (U.S. Patent 6,538,596 B1), which "slot array would have "slit structures" that are periodic in spacing in that some types of slot arrays have periodic spacing of the slots.

The further limitations of dependent claim 7 are met by Gilbert (U.S. Patent 6,538,596 B1) due to the use of a "slot array" for the ground plane as discussed at column 5, lines 21-32 of Gilbert (U.S. Patent 6,538,596 B1), which "slot array would have "slit structures," which are "non-parallel" in some slot arrays.

The further limitations of dependent claim 8 are met by Gilbert (U.S. Patent 6,538,596 B1) due to the use of a "slot array" for the ground plane as discussed at column 5, lines 21-32 of Gilbert (U.S. Patent 6,538,596 B1), which "slot array would have "slit structures," which are "parallel" in some slot arrays.

The further limitations of dependent claim 9 would be fully met by Gilbert (U.S. Patent 6,538,596 B1) in that claim 9 merely recites a formula describing the behavior of the claimed structure, and in that identical structures would be equally described by the same formula.

The further limitations of dependent claim 10 are met by Gilbert (U.S. Patent 6,538,596 B1) due to the use of a "slot array" for the ground plane as discussed at column 5, lines 21-32 of Gilbert (U.S. Patent 6,538,596 B1), which would have "slit structures" which are arranged as recited in claim 10 in certain slot arrays.

The further limitations of dependent claim 20 are fully met by Gilbert (U.S. Patent 6,538,596 B1) in that  $\lambda_{min}$  is not defined, so that any thickness would be less than some  $\lambda_{min}/100$ .

The further limitations of dependent claim 21 are fully met by Gilbert (U.S. Patent 6,538,596 B1) in that the structure of Gilbert (U.S. Patent 6,538,596 B1) is not absolutely rigid (i.e., totally without any flexibility).

The further limitations of dependent claim 23 are fully met by Gilbert (U.S. Patent 6,538,596 B1) in that the "spacecloth 304" in Gilbert (U.S. Patent 6,538,596 B1) is a "conductor" in that the "spacecloth 304" only has a resistance of  $377\ \Omega$  as mentioned at column 4, lines 23-35 of Gilbert (U.S. Patent 6,538,596 B1).

The further limitations of dependent claim 25 are fully met by Gilbert (U.S. Patent 6,538,596 B1) in that the "slot array" used as the ground plane of Gilbert (U.S. Patent 6,538,596 B1) would have "metallic response" in that a slot array would be made of a metal.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 6 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert (U.S. Patent 6,538,596 B1).

One of ordinary skill-in-the-art of electromagnetic absorbers would be a person having a graduate level degree in either Physics or Electrical Engineering and having several years experience in the design and/or use of electromagnetic absorbers.

Gilbert (U.S. Patent 6,538,596 B1) differs from the further limitations of dependent claim 6 in not stating that the "slit structures" are "curved." It would have been obvious to one of ordinary skill-in-the-art that in that slot arrays are characterized by a pattern of slots that is a function of the desired characteristics of the particular antenna, any particular shape, size, width, or arrangement of slots could be used on a slot array depending upon the desired functional characteristics of that particular slot array.

Gilbert (U.S. Patent 6,538,596 B1) differs from each of dependent claims 11, 12, and 13 in not stating the particular characteristics of the "slot structures" that are recited in claims 11, 12, and 13. It would have been obvious to one of ordinary skill-in-the-art that in that slot arrays are characterized by a pattern of slots that is a function of the desired characteristics of the particular antenna, any particular shape, size, width, or arrangement of slots could be used on a slot array depending upon the desired functional characteristics of that particular slot array.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The examiner-cited prior art is of general interest for showing the general state of the related prior art. Please particularly note the mention of the word "aperture" in the Abstract of Takahashi (U.S. Patent 5,617,096 A).

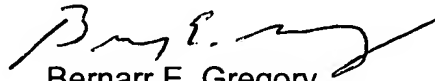
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernarr E. Gregory whose telephone number is (571)

Art Unit: 3662

272-6972. The examiner can normally be reached on weekdays from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza, can be reached on (571) 272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Bernarr E. Gregory  
Primary Examiner  
Art Unit 3662